

*"If war were declared to-morrow, what would we do for aircraft?"*

# AVIATION

MAY 28, 1923

Issued Weekly

PRICE 10 CENTS



French Voisin bombing plane in Flight under Radio Control

VOLUME  
XIV

## SPECIAL FEATURES

Number  
22

BRITISH HELICOPTER COMPETITION  
DEVELOPING EQUIPMENT FOR NIGHT FLYING  
FRENCH RADIO CONTROLLED AIRPLANE FLIES  
THE PASSING OF A GREAT AERONAUTICAL PIONEER

THE GARDNER, MOFFAT CO., INC.

HIGHLAND, N. Y.

225 FOURTH AVENUE, NEW YORK

Entered as Second-Class Matter, Nov. 22, 1920, at the Post Office at Highland, N. Y.  
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# W R I G H T

MAY 28, 1923

VOL. XIV. NO. 22

# AVIATION

Member of the *Aviation Bureau of Circulations*

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THE GARDNER, MOFFAT COMPANY, Inc., Publishers

HIGHLAND, N. Y.

225 FOURTH AVENUE, NEW YORK

Subscription price: Four dollars per year. Single copies  
10 cents. Canada, five dollars. Foreign, six dollars  
a year. Copyright 1923, by the Gardner, Moffat Company,  
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Arrived every Monday. Form clear ten days previously  
Received on second-class matter file No. 12, 2020, at the  
Post Office at Highland, N. Y., under act of March  
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Vol. XIV

MAY 25, 1921

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No. 22

# AVIATION

### Expiration of Original Wright Patent

THE interest recently manifested in France and England regarding the explosive patent situation in the United States may furnish another whiff at "Soviet opinion." The original Wright patent expired on May 22. It will be recalled that in the Spring of 1919, both the French and the British had plans for applying large quantities of their surplus war airplane equipment in this country. American manufacturers at that time presented this "dumping" to ingenuous French buyers with no patent infringement.

This Spring there have been issued a number of airplane manufacturers, designed to give the like impression that the expiration this month of the original Wright patent leaves the entire field of airplane construction in the United States free from claim of patent infringement. In addition, within the last week or so, there have been published 4 quotations from London and Paris, setting up the impression of the Wright patents which expired in England in 1919, with those of Horatio Myers. This may be an attempt to give the latter a patent a status that is not recognized in this country. This was followed by a later dispute from Paris stating that the Bleriot-Pelletier "Jupiter" patent has received an award in a hearing before the "Great Tribunal of the Senate" against various French engine manufacturers. Based upon an admission by them, that latter story carries the statement that M. Robert Daniel Pelletier has been awarded a favorable verdict in the French court as a basis upon which to appeal for similar verdicts in America and other foreign countries.

The owner of the "Jupiter" patent visited the United States some time ago, for the purpose, it was stated, of considering claims against the United States government and American manufacturers, but finally returned to France without doing so.

The impression has been created that this disposition from Paris and London was inspired by a desire to indicate that the expiration of the first Wright patent leaves the American airplane market free from possibility of patent infringement and that the American airplane manufacturers may soon be passing royalties or accrued of certain patents not yet recognized in this country.

It is well known that following the issuance of the original Wright patent, the Wright Brothers and other patentees such as F. W. Baldwin, Joshua Bell and Curtis applied for and received patents that are essential to the operation at present types of aircraft and that in addition to the work of those men there are a large number of other patents of more or less importance, covering the entire field.

There has been a recurrent tendency on the part of some to protest American airplane patents. In fact, previously and presently there has been advanced the false theory that

through a patent monopoly, certain individuals or interests in the United States are organized to prevent the development of aviation in this country. As a matter of fact it is well known in responsible aeronautical circles, that the owner of leading airplane patents in this country has been forced upon a local license, knowable plan and that since our entry into the war, instead of any attempt at monopoly through ownership of patents, just the opposite has obtained. There has existed in the country, since the war, an opportunity for any responsible airplane manufacturer in the United States to secure a license to use practically all of the United States airplane patents upon payment of a nominal royalty on each airplane manufactured and sold. At the same time, American manufacturers have been protected from unfair foreign competition through efficient efforts of the owners of American airplane patents.

### Further Progress in Helicopters

AN important step forward in the development of helicopters is reported from France, where two such aircraft have just succeeded in effecting flights in a closed circuit. On May 11 the Goliathine Helicopter No. 12 for the first time in flight completed a series of 120 meter diameter, and on the same day the Peugeot Helicopter No. 2 made a similar performance over a circuit of 10 meters diameter. It is also reported that the G.P. Helicopter has recently achieved two hovering flights, one of 250 feet and one of about 5 feet duration, which seems to indicate that the original estimate of this machine was not too erroneous.

The great importance of this new performance, will be apparent to students of the problem of certain flight. Previously several helicopters, evidently accomplished one or two flights of some distance, but in these performances it was difficult to determine the exactness of the wind. It would, for instance, be perfectly possible for a helicopter devoid of means of balancing, to cover a certain distance incrementally, fluctuating in the exactness of the wind. The machine that has been able to fly a few hundred, even that number of feet, or had from the certain class of propellers, instead of from lifting gas.

The accomplishment of repeated flights by two helicopters at nearly different constant altitudes, adds a notable advance, as a wind was blowing during these trials, the machine had to fly as well as against the wind, while at the same time its wind-tunnel characteristics were not very definitely demonstrated.

As we intimated some time ago, the question of the helicopter is progressing. The British Helicopter competition evidently shows the importance some countries attach to this type of aircraft.

"If war were declared to-morrow what would we do for aircraft?"

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# Developing Equipment for Night Flying

## How Landing Lights and High Intensity Searchlights are Solving the Problem

Night flying has an important part to play in increasing the military value of the airplane in war as in making aviation an attractive commercial proposition, thus making it possible to have an important new market for applying the airplane to personal and pleasure purposes for the enjoyment of the peace time Air Forces on a large scale. At the close of the war night flying linked the safety to personnel and the equipment necessary to make its commercial application possible. The removal of the necessary military necessity made the general aspect of the development of night flying equipment and its use possible.

In 1920 the question of military night flying was raised and the necessity for commercial night flying was recognized, as it was apparent that the参謀部 airplane was not taking full advantage of its speed and maneuverability if it was forced to cease operations during half of the time because of darkness.

### The Landing Light

The requirements of successful night operations were analyzed at this time and it was concluded that the first essential development should be a landing light to be carried on a single aircraft which would be of high intensity, with maximum reliability and without the fire hazard attendant upon the existing types of paraffinous equipment.

It was decided to attempt to develop an incandescent electric light for this purpose. The first one taken was to examine the characteristics of the incandescent lamp to determine the best type of lamp. Thirty-five different types were tested, though much had been done, preliminary tests were conducted using a 100-watt, 10 ampere bulb mounted in a 5% parabolic reflector, the assembly being tested in a dark room. The first test was to determine what would be the factor of a training airplane. These experiments, although unsuccessful due to low light intensity, impressed location and probably in no small degree, the importance of the problem. A small incandescent lamp was used to determine the best type of lamp to be used. A number of types should be used as it is felt that this type was to be successful.

Further experimentation was developed to determine the best type of lamp to be used. Finally, a few simple 200-watt, 100% incandescent lamps were tested experimentally for use in certain junctional purposes. Work was continued and were concluded in a number of tests, it was found that the incandescent lamp was a collector. Thus followed a long and tedious series of basic tests, which were witnessed by but a few people. At the conclusion of the series, the first series of tests were conducted, the landing light had been built and the possibilities regarding the design of the power unit had been finally established.

The landing light of today is about 100 per cent stronger, weighs about 10 per cent of the original unit and uses about 70 per cent of

the electrical energy of that of the first successful model. It has no noticeable effect on the performance of a Bellanca 4 airplane as compared to the original model, which decreased in landing weight by 1000 pounds. The landing light is 100 watts p.h. Furthermore, the character of this light is such that many successful flights have been made with it by our pilots who had not previously done any night flying. This landing light, with the exception of the bulb itself and some experimental reflectors used in the early trials, is a McCook Field product, and the bulb is the one being designed and manufactured at the request of the Engineering Division.

### Searchlight Equipment

Although the landing light is the most important single item of airplane equipment developed for night flying, success in the development of the searchlight equipment has had to be modified correspondingly in most cases. For instance, navigation lights have been built to be visible from all angles and to give from 5 to 8 miles an powerful a signal, the shiny red "mousetail" flame for propellers has been used for identification, and a great deal of time and effort has been spent in the development of searchlights for airplanes.

At first, the development of airplane equipment for night flying is far ahead of the development of a motor vehicle airplane for night work.

### The Sperry Searchlight

Another lighting device which promises to make night flying as the aviation branches of the Army, Navy and Marine Corps more general and prove of considerable value to the



Sperry-Dixie searchlight transportation truck, first used in test at Belling Field and Detroit, Mich.

"If war were declared to-morrow what would we do for aircraft?"



Airplane which landed in the flood light produced by a Sperry high intensity searchlight

U. S. Air Mail Service is in evidence in speed up the transmission of the mail, as a high intensity searchlight manufactured by the Sperry Gyroscope Co. of Brooklyn, N. Y. will assist in this. The searchlight will be used in commercial air transportation companies adapting this equipment to a searchlight device to be used in the mail planes used to transport passengers and mail to two distant places with a single stop.

Tests of this searchlight were recently conducted at Belling Field, Antwerp, B. F., by M. L. Patterson and C. A. Hospital, representatives of the Sperry Gyroscope Co., in the presence of representatives of the Air Service of the Army, Navy, Marine Corps, the Coast Artillery Corps and Corps of Engineers. At the time of the first meeting of the Navy, the Air Mail Service of the Post Office Department, and civilian attaches from embassies or legations of a number of foreign countries. Army Air Service pilots from Belling Field and from the Office of the Chief of Air Service from the planes in connection with the tests.

The searchlight has a searchlight beam of 1000 watts and a searchlight power which, under ordinary weather conditions, can be from 30 to 35 miles apart. By placing one of these searchlights at landing fields at intervals of from 160 to 180 miles, the pilot of the plane will find them as far as possible, so that the beam of light will be visible for a distance of 30 miles, or more, in a short time of travel.

The searchlight beam is held in a horizontal plane, so that the beam of light sweeps around the entire horizon, appearing from any one direction as a disk of light, as it passes in that direction. It was used for flood-lighting the field for landing purposes. The beam is so intense that a single beam can be used to illuminate the landing field in the shape of a star with about 40 degrees included angle. When so used it will illuminate the entire landing field so brightly as to distract.

A search truck, which is used for transporting the searchlight equipped with a generator for furnishing the power requirements.

The searchlight has this characteristic which makes it the ideal source of illumination for this new service. First it is the most powerful light source available and greater results can be produced economically from this source than from any other. Secondly, the quality of the light from the high intensity arc is much more uniform and therefore, as it is on the same line the color, power to be exercised will bring other means of light in common use.

Experiments with the high intensity arc were made at McCook Field, Dayton, during the past year. These tests showed conclusively the advantages of this type of source for night flying and the increase in quantity and quality of the light.

### What Test Lights Showed

The average of which test flights were made were made average savings of average distance. From the ground, the sky seemed very clear, but from a plane at an altitude of from 5 to 10 thousand feet the searchlight beam illuminated the horizon completely and extinguished practically all other searchlights at a distance of six to ten miles. In flying away from the searchlight beam, it was found that all of the other lights were completely lost at the end of about 25 miles. The Sperry beam, however, when it was located eight miles beyond the city of Dayton, was as bright as it looked through the window of the plane.

At forty miles from Dayton was the only visible light on the entire horizon, all other lights, when

seen, automatically brighten, the beam being out at a range of less than 20 miles. The searchlight beam, however, was arranged so that there was no influence due to refraction of the light. The range of the beam, but from its appearance at 40 miles it seemed evident that the range of the beam would be limited, not by the geographical horizon, either than by being extinguished by the ground.

In doing these tests we see the limiting ranges, one, the geographical range, which depends on the curvature of the earth, and the altitude of the horizon and the observer, the other, the visibility range, which depends on the amount of haze, as seen in the atmosphere and on the brightness of the sky. There are some interesting differences between the various beams. The searchlight beam is the best because it can be held in a high place and is not so easily extinguished, or broken, as light in high places can be. In practice, the observers should stay at above 10,000 feet, because the light beams do not extend up to 10,000 feet, so the visibility range depends only on their curvature. The visibility range is from 10 to 20 miles as a result of the limiting range of the searchlight beam. It is a source of no advantage, therefore, to make the light too bright, because that would be visible for longer miles and cause weather conditions. For this reason, the search light power of lightbeams is comparatively low, ranging from 100,000 to 10,000,000 candle power as the highest lights along our coast.

### Requirements of Aviation Services

In the case of aviation services, conditions are reversed. The searchlight which gives the best high geographical range of range flying at 4000 to 5000 feet, is a searchlight with a large progressive range, 25 miles. Such a beam should at least be able to take advantage of this range. This means that under normal weather conditions the horizon should be bright enough to be visible at the limit of the geographical range. It is the searchlight with the widest angle of illumination which is desirable. Beams of such low power for aviation work could not take advantage of the geographical range but would be limited by a searchlight visibility range due to their extinction by penetrating radio waves from the earth.

Another very interesting and important characteristic was the color of the light as it penetrated an increasing range of

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## The Passing of a Great Aeronautical Pioneer

### Thomas Scott Baldwin is Dead

By *Leaders of Democracy*

Thomas Scott Baldwin, one of the oldest and best beloved pioneers of American ballooning, and long dead in the balloonist's Boneyard at Fallsburg, N. Y., on May 13, 1898, at the age of sixty-eight. He was born in Monroe County, N. Y., on June 10, 1830, the son of Samuel Yates Baldwin and Jane P.

For men in the sentimental community enjoyed a greater popularity than "Captain" Tom, as he was affectionately known in the country friends he had made in the course of forty-eight years rather reluctantly devoted to remonstrance. His studied composure with unswerving directness made him the most popular person when free balloon meets took place with pamphlet drops being the star attraction at meets, from all over the country. His first balloon meet took place in 1871, and in the country

Thomas Scott Baldwin who died in Buffalo, N. Y., on May 17, 1924

the man who followed Captain Baldwin made several thousand arrests and countless parades drove in the United States, Canada and the Far East. He had numerous close escapes, but his unceasing back and girdle shift always enabled him to get away. He was a natural athlete and a good swimmer. He was the first man in the United States to descend from a balloon in a parachute, on June 30, 1885, at San Francisco using a parachute at low wind speeds which was the first modern type of a parachute. During his parades, he made many speeches and lectured on the subject of temperance, some very crude efforts, and in response to Captain Baldwin, he predicted that as the result of his experiments from balloon.

When, at the beginning of the present century, the high-weight gasoline engine was beginning to emerge from the experimental stage, Captain Baldwin was quick to see the promise it held in store for solving the difficulty of lubrication. From 1890 to 1895 he built a great number of small, compact engines of rather simple design which were destined for small gasoline engines and those he exhibited, as he had previously done with five-hundred and one-hundred, at various country fairs. Thus

He was preparing the American public for the impending advent of *sovereign* navigation, which then only existed in the heads of *visioned* politicians and navalists.

In 1967 the U.S. Army became impressed with the military capabilities of the stratosphere, and the Stratospheric Corps evolved from the Stratospheric Division. The first stratospheric corps was organized at 32,000 ft. It consists of three regiments, the 1st, 2nd, and 3rd. The 1st and 2nd regiments are successful flight teams, see the Second Stratospheric Division. The 3rd is 85 ft long and 12 ft in diameter, with a cigar shaped envelope at the front. It is driven by a motorcar, from which a long cylindrical trailer extends behind it. The trailer is 10 ft wide, or, can carry a 26 ft cigar. Water-cooled engines are activated through a solid state microprocessor, and give the cigar a speed of 20-25 mph. The pilot and co-pilot are seated in the front of the cigar, in a bullet-shaped and transparent glass, while on the rear of the cigar a structure and lowered vertical and directional control. The total load of the 3rd is 1936 lb of which approximately 500 lb is the motorcar and driver. It is in this, the first American stratospheric division, that the early agreements of the U.S. Army were tested.

For the next few days Captain Baldwin frequently detailed lightships—such as the *Friend of the Seafarer* which had been in use in the world wide seas and harbors for many years—and the *Friend of the Fisherman* which was so much interest to him to model airplane manufacturers. It is of interest to record that Captain Baldwin has in 1931 proposed to his own design a pointed lightship which had a frequency of 1000 cycles and a 1000 watt transmitter, with wireless receiving and also a 1000 watt receiver. The name of this lightship, Baldwin and the type of machine, known as the *Red Devil*, for twisting propellers as well as for exhibition flights. The engines used were a Curtiss 8 cylinder and a 1000 kw. transmitter, the latter being about 800 lbs. In 1933, therefore, Captain Baldwin planned to have his aircraft, one of whom he had personally trained after having learned to fly on the *Red Devil*, and conducted a highly successful exhibition tour in the Philippines, Japan and China. The Baldwin firm showed American flags for the first time and where in more cases, no airplane had ever been seen.

In 1818, a few months before the outbreak of the Great Captain, Captain Baldwin made an extensive tour of Europe for the purpose of improving his health and the health of his wife, who was then a invalid. The tour was a success, and Captain Baldwin returned to America, and, notwithstanding his infirmities, was a prominent and popular orator. The writer, who had the privilege of taking him around in the French sailing vessel, with permission to remain on the consecutive evenings of his tour, was greatly struck by the manner in which he could one of the easiest French sailor about. The two greatest orators at the earliest naval school probably did not speak a word along another, but they had never said more. When the door opened and Baldwin and Blaith entered the room, the sailors stood back, looking at them, and, when the door closed, the sailors, who had been looking over their shoulders, said, "Mallit," and Baldwin, "Baldwin," and Blaith "Neither." Now follow the other nautical languages, but they understood one another without so many words.

During the war, the importance of aircraft to the Allies became clear. Before many months had passed, airplanes and airships had overwhelmingly demonstrated their importance in war operations, and any military

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Wright-Lawrance-Meyer

The Wright Aeronautical Corp. announces that it has acquired by merger the assets and liabilities of the Lawrence Aero Engine Corp. By this acquisition, the Wright company adds to its present line of water cooled aircraft engines the Leroyenne line of air cooled motors.

The **Barrowell** company has been the pioneer for some years in the development of air cooled motors, and today has the only fully developed line of air cooled airplane motors now



Charles E. Lounsbury, *Architect of the successful Lawrence star-rated regime*

## Heat Conduction in Fins of Air-Cooled Engines

N.A.C.A. Report No. 128

A.C.A. Report No. 258 by D. H. Harper '38 and W. B. Lewis, deals with the problem of reducing normal geometrical heat loss of the cooling surface, which is, of course, not at uniform temperature, to equivalent "adiabatic" areas at one definite point, namely, that providing the cylinder wall at the point of attachment of the fin. This makes it possible to (1) the cooling surface as if it were part of the cylinder and (2) increase effectiveness.

the new aircraft developed in the experiments, see the geometrical arrangement of the fins, thermal conductivity of the material, temperature of the fins, and the coefficient of surface heat dissipation between the fins and the air stream.

An expansion for approximate calculations is developed, based upon simple mathematics and very convenient in engineering use. The source of the paper is an expansion into the magnitude of the errors involved in the use of the approximate formulas. The approximate expansion needed for accurate work is given. The exact expansion, needed for approximate work, including series of terms, super-Newton's series, Boussinesq's series, a series of two loads with auxiliary arguments, etc. The results of the work are collected in graphical form in a series of charts, so that the designer can use the simple formulas developed and apply to all successive problems, starting from the charts, thus avoiding extensive calculations.

4. A copy of Report No. 158 may be obtained upon request to the National Advisory Committee for Automation, Washington, D. C.

*"If you were destined to perish, what would you do for yourself?"*



# ARMY AND NAVY AIR NEWS

## U. S. Army Air Service

**Primary Flying Students Nursing Graduates**—With only four more weeks of instruction, the present class in the Primary Flying School at Brooks Field is rapidly completing its studies, and it is expected that a big percentage of the class will have graduated in time to fly. About three-quarters of the students have completed their flying, and it is the object to present to a group of representatives of Insurance Companies the risk which they carry insurance, via, the flight of the incoming four weeks, will be in the primary course.

Two additional hours have been allotted for each student for gunnery instruction, and in view of these, all regular assignments will be used. The Mark 3 and Model 7 cameras will be mounted as fixed guns and the results of the photographic take will give a definite answer to the question, at the students in this week, for the first time flight, the students will be given a gunnery assignment, and this will be followed by a primary flight. The gunnery assignment will be given a set of instructions, the gunnery trip, the gunnery assignment will be given a gunnery instruction and will be given a demonstration of how to dive at a target. The student will then perform this work, since and then will have two similar flights with various maneuvers added to the practice. The final practice will be shooting at aircraft flying in a horizontal plane.

**Bodies of Col. Marshall and Lt. Gen. Webster Found**—After Henry H. Arnold, Commandant of Rockwell Field, San Diego, has reported to the Chief of the Air Service that the bodies of Col. Francis C. Marshall, Capt. and Lt. Charles E. Webster, Jr., and Lt. Col. Charles E. Webster, Jr., all of 7, 1932, have been found. The wrapped bodies in which they were flying and their bodies were found on May 13, and brought to Rockwell Field as May 13, Colonel Arnold reported. The plane was discovered in the mountains about 60 miles northeast of San Diego, near Cajon Pass.

Colonel Arnold, a cavalry officer, had been posted on an inspection trip to Rockwell Field, and then was en route from Rockwell Field to El Paso when they were last seen five months ago.

**General Patrick Returns from Inspection Trip**—Gen. George M. Davis, the Chief of Air Service, returned to the States on May 21 from an inspection tour of the Army Air Service posts west of the Mississippi. The General has been visited and personally inspected every Army Air Service station in the United States and expressed himself as being thoroughly satisfied with the format of the stations at the various Air fields. On his return General Davis turned from one station to another, by which the captain of each made of courtesy. He was accompanied on his inspection tour by Maj. H. E. Bissell, who is on duty as the Training and War Plans Director, Office of the Chief of Air Service.

**Person Trained for Burma Defense**—Three Service Officers of the Air Service recently reported at Brooks Field, Ft. Worth, Texas, for training covering a period of two weeks, the course consisting of air patrol tactics, ground work, supply, administration, and medical needs. These officers were Lt. Gen. Henry M. Presler and Maj. Louis, Asst. M. A. Abby and Capt. E. B. Bissell.

"If war were declared to-morrow what would we do for aircraft?"

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## U. S. Naval Aviation

**Flight of 235 from Germany to United States**—The French magazine U. L. April 25, 1932 contains the following note stated to have been supplied by Mr. Bouscaren, who in September, 1931, attended a conference at Baden-Baden where the members of the Zeppelin Company avoided certain details relative to the flight. The note reads: "It is the object to present to a group of representatives of Insurance Companies the risk which they carry insurance, via, the flight of the airship from Germany to the United States."

**Property Insurance**—Aerlingh informed by German Government to the United States on account of reparation in kind for the war damage on March 1, 1932, the United States are responsible for the risk of insurance in the United States.

**Direction of Bremen**—The trip commences at the moment the airship leaves the hangar in Germany (Bremen, near Bremen, probably), to be completed upon landing in the United States (Hartford, probably) at the moment when American and English crews will be on board. The flight will be covered and made after Bremen, Germany, and the United States.

The experience of the Zeppelin Company, which has accumulated more than 300 airships, will be at the disposal of the German crew, present a sufficient guarantee that no accident would take place in flight. The working will be split up between the English and American crews, the English to an examination of experts and will carry on or carry out the work.

**Details of construction**—The General of Aeronautics has designated the site of the landing at 10,000 m. on water. Bremen upon which figure the Zeppelin company adopted to model the airship, at which the length is 200 m. and diameter 35 m. approximately.

The airship 235 will carry 45 tons of load, the speed will be 175 km. per hour, five engines of 400 hp. each. The wings of 700 m. could be made at a speed of 315 km. per hr. approximately, without taking into consideration wind resistance. A weight of 10 m. per second will produce the wings.

Taking into consideration the effect of the various conditions over the Atlantic Ocean, the acceleration of head winds by lateral currents a time of 75 to 80 hr. is estimated on the first flight. A provision of 30 tons of gasoline is sufficient for flight of 150 km. per hour about 200 hr. giving a margin of 100 hr. The fuel consumption is approximately of 160-180 per cent, the speed is increased to 100-110 km. per hour.

By making this demonstration the Zeppelin company shows their confidence and the successful completion of the voyage will present them to offer their services to international capital for a workshop management over long distances without intermediate stops.

**Arctic Explorer Visits Bureau of Aeronautics**—Lieutenant George W. Davis, the Arctic explorer, visited the Navy Bureau of Aeronautics during the past week and conferred with Capt. Edward Maffett in connection with the possibility of Arctic flight by naval vessels.

Some interesting data on climate conditions in the Arctic were cited by Mr. Maffett in support of his contention that polar flights by air are altogether feasible. He said that the Arctic is a land of extremes, with temperatures ranging from 100° F. in the shade, and temperatures approaching 100° F. in the sun, and that temperatures approach maximum regarding low winds and intense cold which are supposed to prevail over the polar areas. Mr. Maffett has spent eleven and a half years in the polar regions and has written extensively on the possibilities of polar air routes.

May 25, 1932

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Initial Photo U. S. N. 203

The enclosed pictures of the F-1 are used model 235—on the left, view of the six polar criss; on the right, the navigation and control unit in a cabinet form.

**Goal of Bremen to Bristling Place**—An 1818 is being reconditioned at the Naval Aircraft Factory for the use of the Air Corps Bureau of Aeronautics. It will have all the standard 1930 changes and in addition the radio apparatus will be modified to meet the requirements of the Bureau. Weather conditions for the trip were unfavorable but an attempt was made to cover out the schedule, and as it turned out everything was ideal. Winds were predicted and there were no clouds. The temperature was 60° F. and the sun shone and it happened at no other good weather where the plane progressed. The weather was pleasantly warm, the clouds were scattered, and the sun was bright.

**Aircraft Squadron, Seattle**—Lieutenant H. P. Jones, Command-in-Chief, U. S. Fleet made an inspection of the Aircraft Squadron based at Lake Union on the occasion of his arrival with the Flagship, Seattle. This is his first inspection of the Aircraft Squadron as these sailors were recent arrivals from the Fleet Air Wing. The squadron was impressed on the basis of the inspection and was highly satisfied. A formation practice with planes in formation was exercised. Roads in formation and an aerial exercise followed.

**Naval Air Station, Hawaiian Islands**—The naval airship CT was utilized for the purpose of surveying Virgin Islands Sea Commissions on a survey trip over Danish Seamounts in the region of Lake Bremens. On the earlier survey trip was completed a route out over the coastal regions where numerous photographs were made of Coast Guard Stations recently visited by destroyers.

Practices are being held at the station to take care of a detachment of Marine Banking planes from Quantico which will be at this station to carry out banking operations in the area later.

Major M. G. O'Flaherty, British Air Attaché, and Col. R. M. O'Farrell, British Air Attaché, Department of National Defense, spent a few hours inspecting the station, being shown about the hangars and shops generally.

**Naval Air Station, Pearl Harbor, T. H.**—Many airplanes are reported as used for prevention of smuggling of opium in the Hawaiian Islands. It is thought that sea craft carrying drugs "have to" all the islands where they are landed by plane craft and take their cargo ashore and then contact officials. Planes are used to intercept and follow to find the ships of sea as sea are being landed by shore craft, thus giving customs officials a chance to detect smuggling operations.

**Naval Air Station, Anacostia, D. C.**—A Vought mail plane was furnished Capt. George Thorne, French Army Air Attaché at the French Embassy, for an inspection trip to Honolulu Roads and Lanai Field. Captain Thorne was accompanied on his trip by Lieut. W. D. Thomas, Commanding Officer of the Naval Air Station, Anacostia, D. C., in another Vought mail plane.

**Naval Air Station, Pensacola, Fla.**—A very interesting report was made on the return trip of Lieut. Comdr. C. P. Davis, U. S. N. 203, from the Far East. The trip was made in 100 hours in day with a day for refueling at Okinawa, S. C. The B-17H machine made the flight in 8 hr. 46 min. Weather conditions for the trip were unfavorable but an attempt was made to cover out the schedule, and as it turned out everything was ideal. Winds were predicted and there were no clouds. The temperature was 60° F. and the sun shone and it happened at no other good weather where the plane progressed. The weather was pleasantly warm, the clouds were scattered, and the sun was bright.

The Standard Oil Agent at Okinawa, was right on the job and the trip was a success. The weather was good and pilot was never lost. Only on long sea necessary to refuel and get ready for again.

The performance of the plane and engine on this trip is a splendid tribute to the engineering and structural workman of Pensacola personnel.

The most interesting item concerning weather conditions for a long distance flight was that unless very adverse weather was reported officials should be encouraged making the best of the weather.

## Coming Aeronautical Events

### AMERICAN

May 30—Fifth Annual Aircraft Exhibition, Flying Club of Baltimore, Logan Field, Baltimore, Md.

July 4—National Biplane Race, Indianapolis, Ind.

Oct. 23—National Airplane Race, St. Louis, Mo.

Early Fall—Curtiss Marine Flying Trophy Race.

### FOREIGN

June 25-26—International Air Congress, London.

July 25—International Air Exhibition, Gothenburg.

Aug. 12—Syrupis.

Aug. 12-13—Syrupis, Meck, Berlin, Germany.

Aug. 18-19—Tokorozawa, Nippon, near Yokohama.

Sept. 12—Cordis Seaplane Biplane Race, Brussels, Belgium.

Sept. 21—Seabrook Maritime Aviation Trophy Race, Cuxhaven, Germany.

Dec. 1—Races close for French Biplane competition.

"If war were declared to-morrow what would we do for aircraft?"

**Bendixen Test for All Metal Aircraft Construction**—Similar to the test made from wooden slats to those of steel in the four years previous, Bendixen has now tested all wood and all metal planes with their respective qualities of resistance to deterioration from weather. The development of the light, sturdy wood framework before the past few years has been an innumerable boon to progress in aircraft construction and investigation of all possibilities is being exhaustively pursued.

The Bureau of Standards has been conducting a series of tests on the resistance to fatigue of structures when under rapid loading stress. Most of the samples tested have withstood two million cycles without failure and the investigations are being continued. The results of these tests are very closely with those of the series, even though they were conducted with material of different designs and on structures of different construction. In order to afford a suitable comparison between results of these tests and similar ones in stress, it is planned to test steel sheet samples in the same manner as the wood samples. The work requires a long period of time. There are only four machines and with some samples it is possible to give only from five to ten hundred reversals per minute. As it is considered that some of the samples will be in over two million reversals, it will be seen that the time required to fracture a single sample is very long.

**Leon Gourdin** II, French Gens-Lieute in Metropole Club—Speaking on the subject of Naval Aviation, Leon Gourdin, II, Gens-Lieute of the Bureau of Aeronautics, addressed a meeting of the French Society of Naval Officers at Paris, May 29. The talk was distributed by leaders' tables and a series of motion pictures showing the various arms of the Navy in action, the operations of the various carrier groups, the work at the U.S. bases and the landing of the German ships from the air. The studies of the various nations, and especially the Navy Department were given of the "Entreprenor" Club at a hotel supper which was served near the Seine.

**Penobscot—Eugene W. M. Tolson** has reported to the Bureau of Aeronautics for duty, and has since been admitted to the Naval Hospital in Washington for treatment.

**Louis F. W. Ward** has reported to the Bureau for duty and has been assigned to the Flight Division.

**Deutsche Luftwaffe** May 1 to May 15, 1933.—Lt. Col. Dr. K. H. Kroll, Ph.D. (S.A.)—Detached Bureau of Navigation, Navy Dept. to receive the naval aviator Naval Air Station, Lübeck, Germany.

**Louis Stephen E. Shadley** T.S.X.—Detached Aircraft Production Steering Panel, to Aircraft Squadrons, Berlin Fliege.

**En. Philip A. Hens** (R.C.) T.S.X.—Detached Bureau of Navigation to receive for discharge to supply officer Aircraft Production Steering Panel.

**En. Gk. G. G. Bunting** T.S.X.—Detached U.S.S. America to U.S.S. George.

**Louis Louis L. Baldwin**—Detached Aircraft Soundless Recording Photo, to U.S.S. Dixie.

**En. Fred E. Lueker** T.S.X.—Detached School of Aviation Motoring, Marine Corps Air Station, Lemoore, Calif., to Naval Station, Weymouth, Mass.

**En. Arthur F. Smith** T.S.X.—To Naval Air Station, Agana, Guam, D. C.

**Op. Cdr. Carl F. Stolle** T.S.X.—Detached Naval Air Station, San Diego, Calif., to Naval Station.

**Capt. Wm. W. Clegg** T.S.X.—Detached naval U.S.S. Kearsarge, U.S.A. (Aircraft.)

**Capt. William D. Ghol** T.S.X.—Detached off of Nav. Dept. of Aircraft Test Bureau, San Diego, Calif., to U.S.S. Relief.

**Capt. Charles R. Koenigsmann**—Detached U.S.S. Relief, to Naval Air Station, Pearl Harbor, T. H.



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